



Pesticide Enforcement Branch



CACASA

# Pesticide/Wildlife Incident Response Plan Training Workbook

August 16, 2001

## ACKNOWLEDGMENTS

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This Pesticide/Wildlife Incident Response Plan Training Workbook for Fish and Game Wardens, County Agricultural Biologists and Senior Pesticide Use Specialists staff was developed by a working group of representatives from the Department of Fish and Game (DFG), the Department of Pesticide Regulation (DPR), and the California Agricultural Commissioners and Sealers Association (CACASA).

## DISCLAIMER

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## PESTICIDE/WILDLIFE INCIDENT RESPONSE PLAN

## TRAINING WORKBOOK

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## Introduction

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This Pesticide/Wildlife Incident Response Plan (PWIRP) training was developed in accordance with the Memorandum of Understanding between the Department of Fish and Game (DFG), the California Agricultural Commissioners and Sealers Association (CACASA), and the Department of Pesticide Regulation (DPR) to implement a plan describing in detail procedures for dealing with pesticide related incidents involving injury to fish and wildlife resources.

The training includes a copy of the PWIRP, this workbook, a presentation, and exercises, based on past incidents, to prepare field staff to handle incidents described above, according to communication, notification and sampling protocols established between the three parties above.

## Objectives

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The purpose of PWIRP training is to help understand and define the roles, responsibilities and response levels of County Agricultural Biologists (Biologists), DPR Senior Pesticide Use Specialists (Seniors), and Fish and Game Wardens (Wardens) when investigating pesticide related injuries or deaths to wildlife.

At the completion of this training you will:

- T Know who the Biologist(s)/Senior/Warden is for your area and procedures for contacting them.
- T Know the role/responsibilities of yourself and your counterparts in the sister agencies.
- T Know content of the Memorandum of Understanding between the 3 parties.
- T Be aware of established communication, notification, and sampling protocols for incidents involving injury/death to fish or wildlife.

## Authority

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County Agricultural Biologists and Senior Pesticide Use Specialists get their authority to investigate pesticide related incidents involving fish and game from four California codes:

- 1) Division 6, 7 and 13 of the Food and Agricultural Code (FAC) - for overall authority over pesticides and pest control operations
- 2) Title 3 of the California Code of Regulations (3CCR) - for details of that authority
- 3) Business and Professions Code (B&PC) - for authority over structural pest control
- 4) Title 16 of the California Code of Regulations (16CCR) - for regulations pertaining to structural pest control.

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), is the federal act which enables the state legislation. This act covers all pesticides including herbicides, which are not named in the title. The corresponding regulations may be found in the Code of Federal Regulations, Title 40, parts 150-189 (CFR 40).

CFR 40, Section 152.3(s) definition of pesticide: Pesticide means any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or intended for use as a plant regulator, defoliant, or dessicant, other than any article that is a new animal drug\*, or is an animal feed\* (\*see Federal Food, Drug and Cosmetic Act, Section 201w,x)

DFG is the lead agency for protecting, conserving, and perpetuating fish and wildlife resources in California. Fish and Game Wardens= Mission Statement reads "To protect and manage all fish, wildlife and plant resources, the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public both now and in the future". They get their authority to investigate pesticide related incidents involving fish and game from two codes:

- 1) The California Fish and Game Code (F&GC) - for overall authority involving fish and wildlife
- 2) Title 14 of the California Code of Regulations (22CCR) - for details pertaining to that authority

Fish and Game Code Sections 1301, 1600, 1700, 1802, 1900, 2000 and 2701 list specific authorities and policies associated with the management of fish, wildlife, and plant resources, including threatened and endangered species.

Wardens also work with the following codes: Penal, Water, Harbors and Navigation, Government, and Health and Safety. There are several federal acts such as the Migratory Bird Act and the Endangered Species Act which govern fish and game issues.

## Central Laws

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A comprehensive study of each agency's laws is not possible here. There are, however, some basic concepts that we can share. These are DPR's **Conflict with the pesticide label** and F&G's **Unlawful to Take** and **Water Pollution**.

FAC, Section 12973 **Conflict with the label**

The use of any pesticide shall not conflict with labeling registered pursuant to this chapter which is delivered with the pesticide or with any additional limitations applicable to the conditions of any permit issued by the director or commissioner.

In other words, the pesticide label instructions carry the weight of law.

F&GC, Section 2000 **Unlawful to Take**

It is unlawful to take any bird, mammal, fish, reptile or amphibian except as provided in this code or regulations made pursuant thereto. Possession of a bird, mammal, fish or reptile or parts thereof in or on the fields, forests, or waters of this state, or while returning therefrom with fishing or hunting equipment is prima facie evidence the possessor took the bird, mammal, fish or reptile or parts thereof.

The definition of "take" means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill. The concept of **taking** includes killing with a pesticide even though the victim is not removed or physically **taken**.

F&GC, Section 5650 **Water Pollution**

Water Pollution; prohibition.

- a)...it is unlawful to deposit in, permit to pass into, or place where it can pass into the waters of this state any of the following:
- 6) Any substance or material deleterious to fish, plant life or bird life.

This F&GC section prohibits polluting "waters of the state" with pesticides.

## Where We Converge

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DFG, DPR and the County Agricultural Commissioner (CAC) staff are involved when pesticides are suspected as the cause of environmental pollution, fish and wildlife injury, or death. There is a Memorandum of Understanding between these three parties designating the role and responsibilities of each. (See the Pesticide/Wildlife Incident Response Plan).

Representatives from the three parties above participate on Environmental Task Forces which meet

periodically to discuss and review various environmental cases

DFG, DPR and CAC staff all face increasing numbers of ag/urban interface issues.

### **Where We Diverge**

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All three groups are involved in environmental protection, though each have a different approach, particularly in enforcement actions. Penalties may differ.

Fish and Game Wardens are peace officers who look for criminal activity, and prepare cases; cases usually go to the local D.A. for criminal or civil prosecution. DFG has the authority to recover clean-up costs for environmental pollution.

Fish and Game Biologists are considered public officers. They provide scientific expertise to wardens.

County Agricultural Biologists/DPR Seniors are considered public officers. They handle complaints, and investigate pesticide-related incidents. The CAC staff typically seek enforcement through administrative civil penalty actions; though they may refer cases to their District Attorney, or to DPR which can either take the case or refer it to the Attorney General.

### **Agencies - Local**

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County Agricultural Biologists work cooperatively with the County Environmental Health Department Specialists, as well as with county sheriffs. Violations requiring enforcement action result in a civil penalty hearing, either agricultural or structural. Occasionally, a severe case is taken to the District Attorney for prosecution in a criminal court.

Fish and Game Wardens work cooperatively with county sheriffs. Violations lead to criminal court where appropriate. Prosecution of cases handled by county District Attorney.

### **Agencies - State**

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The DPR has oversight and responsibility for training CAC staff about pesticide use enforcement. CAC staff also work closely with the California Department of Food and Agriculture (CDFA). DPR takes licensing and certification violations to the Attorney General for prosecution. Issues of environmental contamination by chemicals other than pesticides are referred to the appropriate department/board in the California Environmental Protection Agency (Cal EPA).

These departments/boards and their local agencies are:

- 1) Department of Toxic Substance Control (DTSC)
- 2) Air Resources Board (ARB), and Local Air Pollution Control Districts
- 3) Water Resources Control Board (WRCB), and Regional Water Quality Control Boards

- 4) Integrated Waste Management Board (IWMB), and Local Enforcement Agencies
- 5) Office of Environmental Health Hazard Assessment (OEHHA)

DFG Wardens cooperate closely with the Regional Water Quality Control Boards, various Environmental Task Forces and the following state agencies:

- 1) Attorney General (AG)
- 2) California Department of Forestry (CDF)
- 3) Office of Emergency Services (OES)

## **Agencies - Federal**

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CAC staff work with federal agencies through the DPR Senior. These agencies typically are:

- 1) US Environmental Protection Agency (US EPA)
- 2) US Department of Agriculture (USDA)
- 3) US Food and Drug Administration (US FDA)

DFG Wardens work with the above agencies as well as other federal agencies:

- 1) US Department of the Interior - Fish and Wildlife Service (FWS)
- 2) Army Corps of Engineers (ACE)
- 3) US Coast Guard (USCG)
- 4) Federal Bureau of Investigations (FBI)
- 5) National Oceanic and Atmospheric Agency (NOAA)
- 6) National Marine Fisheries Services (NMFS)
- 7) US Geological Service - Biological Resources Division (USGS)

## **Memorandum of Understanding**

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The Department of Fish and Game, the Department of Pesticide Regulation and the California Agricultural Commissioners and Sealers Association have a Memorandum of Understanding outlining their roles and responsibilities. The three parties agreed to mutual notification of pesticide incidents involving fish and wildlife. They agreed to promote both technical and policy consultations through the following groups: the Pesticide Registration and Evaluation Committee (PREC), and the Endangered Species Advisory Group. Consultation is a requirement of FAC, Section 14103.

The parties agreed to develop an implementation plan to describe procedures to carry out specific sections of the Memorandum of Understanding. The MOU was signed off in May, 2000.

For purposes of enforcing F&GC, Section 5650, the use of a pesticide, as defined in FAC, Section 12753, will not be considered deleterious to fish, plant life, or bird life provided that the pesticide is used in full compliance with labeling and pesticide laws and regulations.



The Pesticide Investigations Unit of DFG will consult with DPR on issues concerning waters of the state, and mitigation measures. It will review fish/wildlife cases of significant loss to revise mitigation measures.

## **Contacts**

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**Note\*** The state contact list of Agricultural Commissioners can be found in the actual Pesticide/Wildlife Incident Response Plan.

### **DEPARTMENT OF PESTICIDE REGULATION**

#### **Enforcement Branch (Headquarters)**

1001 I Street, 3<sup>rd</sup> Floor  
PO Box 4015  
Sacramento, CA 95812-4015  
Phone: (916) 445-4038  
Fax: (916) 445-3907

#### **Northern Regional Office**

3050 Beacon Blvd., Suite 103  
West Sacramento, CA 95691  
Phone: (916) 372-6892  
Fax: (916) 372-6939

#### **Central Regional Office**

2895 N. Larkin Avenue, Suite B  
Fresno, CA 93727  
Phone: (559) 445-5401  
Fax: (559) 445-6805

#### **Southern Regional Office**

130 Chaparral Court, #130  
Anaheim, CA 92808  
Phone: (714) 279-7690  
Fax: (714) 279-7692

### **DEPARTMENT OF FISH AND GAME**

#### **Headquarters**

1416 Ninth Street, 12th floor  
Sacramento, CA 95814  
Phone: (916) 653-7664  
Fax: (916) 653-1856

#### **Pesticide Investigations Unit**

1701 Nimbus Rd., Suite F  
Rancho Cordova, CA 95670  
Phone: (916) 358-2950  
Fax: (916) 358-2953

#### **Reporting an Incident to DFG:**

The dispatching service, which operates 24 hours/day, will contact the appropriate warden who will return your call. Phone: (916) 445-0045.

### **Role - DFG / Fish and Game Wardens**

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Since 1870, Wardens, as peace officers, have enforced laws related to sport and commercial hunting and fishing. In their role to protect fish/wildlife resources their duties include checking for licenses,

adherence to bag limits, and poaching. They respond to calls of pollution, a major threat to our fish and wildlife resources. *Pesticide* pollution is a minor part of that threat.

Wardens work out of their homes in an organizational style called ~~A~~Community Oriented Policing.®

Wardens have many duties, but the ones pertinent to us are:

- Investigation of pesticide related fish and wildlife loss(es)
- Evidence collection and Forensic laboratory support
- Writing and serving search warrants
- Physical arrest of violators
- Implementing the Incident Command System (ICS)
- Acting as Incident Commander at pollution incidents
- Acting as government agency coordinator at pollution incidents

Pesticide Investigation Unit staff provide forensic lab support, as well as technical advice and guidance to Wardens on sample collection, and data analysis information.

### **Role - DPR /Enforcement Branch Staff and Senior Pesticide Use Specialists**

The primary responsibility of the Enforcement Branch is to enforce federal and California laws and regulations pertaining to the proper and safe use of pesticides. Branch staff oversee licensing and certification of dealers, pest control businesses and applicators; administer the nation's largest state pesticide residue monitoring program; monitor pesticide product compliance; and coordinate pesticide use reporting.

Seniors serve as Liaisons to CAC staffs providing: training, coordination, and oversight. They often assist CAC staffs in major incidents, particularly with sampling plans, and have overall responsibility for pesticide incident investigations.

### **Role - CACs/ Agricultural Biologists**

The local administration of DPR's pesticide regulatory program is the responsibility of the County Agricultural Commissioners (CACs) with coordination and training provided by DPR.

Pesticide use enforcement activities in the field are largely carried out by 54 County Agricultural Commissioners and their staffs, comprising approximately 365 agricultural biologists throughout the state.

The CAC staffs enforce state and local laws and regulations pertaining to pesticides. The many duties of county staff include:

- Evaluation of permit requests for the use of restricted pesticides

Monitoring of handling activities involving all pesticides, in both agricultural and non-agricultural settings  
Investigation of incidents suspected of being caused by pesticides, including the collection of evidence  
Providing outreach to industry regarding pesticide laws and regulations  
Taking enforcement action against violators  
Compilation of pesticide use information for their respective counties

## **Incident Guidelines & Procedures / Department of Fish & Game:**

### **American Society for Testing Materials (ASTM)**

*Standard E1849-96 / Standard Guide for Fish & Wildlife Incident Monitoring and Reporting*

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The American Society for Testing Materials has published guidelines (standard E1849-96) for collecting, reporting, and interpreting fish and wildlife incident data. The guide covers planning and completing a thorough investigation to determine an incident's cause. Recommendations for documenting and reporting incidents are provided.

A summary of the information necessary for completing a risk assessment and information on how fish and wildlife incident data are considered for regulatory decisions are also provided.

DFG adopted the Guidelines (Standards) referenced above for handling fish/wildlife incidents. For specific information regarding sampling, Pesticide Investigations Unit staff are called. DFG staff also follow the California Penal Code for matters of evidence collection, search and seizure, and chain of custody.

In addition to Standard E1849-96, DFG developed a Pollution Resource Manual, which provides procedures for handling spills affecting fish/wildlife.

## **Incident Guidelines & Procedures / Department of Pesticide Regulation & County Agricultural Commissioners**

DPR has developed a number of manuals which address procedures and protocols on a number of issues. These include:

- Investigative Sampling Manual
- Investigative Techniques Manual
- Pesticide Episode Investigation Procedures Manual
- Manual of Procedural Guidance for Pesticide Enforcement Personnel
- Marketplace Surveillance Program Manual (Produce Residue Sampling)
- Reference Manual for Restricted Materials Permits and Certification
- Inspection Procedures
- Implementing the Worker Protection Standard in California

Each manual includes a computer based presentation (most in PowerPoint) and workbook used to train both DPR and CAC staff.



## **Pesticides - Types/Uses**

Pesticides can be grouped a number of ways, including by chemical “class” or by “use category”. The following are examples of common “classes” and some products\* within these classes.

<u>Organophosphates</u>		<u>Carbamates</u>		<u>Anti-Coagulants</u>
Phoskill	Azodrin	Sevin	Manex	Ramik
Lorsban	Diazinon	Temik	Furadan	Warfarin
Phosdrin	Dyfonate	Lannate	Eptam	Rozol
<u>Synthetic pyrethroids</u>		<u>Chlorinated Hydrocarbons</u>		
Pydrin	Ambush	Thiodan		
Asana	Talstar	Kelthane		

The following are examples of common use categories, and some products within these categories:

<u>Insecticides</u>	<u>Herbicides</u>	<u>Fungicides</u>	<u>Rodenticides</u>	<u>Fumigants</u>
Lorsban	Paraquat	Captan	Ramik	Methyl Bromide
Sevin	Eptam	Bravo	Warfarin	Vikane
Ambush	2,4-D	Manex	Strychnine	Telone
Thiodan	Banvel	Thiram	Phostoxin	Metam Sodium

\*Note these are Trade names; active ingredients are not listed. Pesticides have many brand names, with the same active ingredient.

## **Restricted Materials**

Some pesticides are classified as “restricted use pesticides” at the federal level by US EPA or at the state level by the DPR. Pesticides are classified restricted due to:

- Danger of impairment to public health
- Hazards to applicators/farm workers
- Hazards to domestic animals (including honeybees) and or to crops from direct application or drift
- Hazards to environment from drift onto streams, lakes, or wildlife sanctuaries
- Hazards related to persistent residues in the soil resulting ultimately in contamination of air, waterways, estuaries, or lakes with consequent damage to fish, birds, & wildlife.
- Hazards to subsequent crops through persistent soil residues.

The use of restricted materials is closely regulated. These materials may only be used by certified commercial or private applicators who have been granted a possession and use permit by the local County Agricultural Commissioner’s (CAC) office.

A restricted materials permit (RMP) often includes specific use conditions. Users of restricted materials must provide a “notice of intent” listing specific sites/times prior to use, followed by a “pesticide use report” after the application is completed to the local CAC.

## **Application Methods**

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We can group application methods into aerial or ground applications. Aerial applications are made by fixed-wing aircraft or by helicopters. Both types of aircraft should fly within ten feet of the crop. Because aerial applications are made in 5 to 20 gallons of water per acre, they usually use liquid formulations of pesticides although some wettable powders are used. With the major exception of sulfur, dusts are less frequently applied by air because of the difficulty of containing dusts within the target area.

Ground applications take many forms including air blast sprayers in orchards and vineyards; boom sprayers on row crops and for pre-emergence weed killers; dusters, such as those used in vineyards for sulfur applications; backpack sprayers and dusters; soil injection rigs; and chemigation. Chemigation is the addition of chemicals, in this case pesticides, to irrigation water. The water is then run through furrows, drip irrigation or sprinklers.

## **Pesticide Formulations**

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Even distribution of pesticides on the target crop is a major concern of manufacturers. Manufacturers use a variety of formulations depending on the solubility of the product to facilitate even distribution and, at the same time, minimize off target movement of the pesticide. Safety concerns for handlers also affects the formulations available, and the type of packaging used, such as water soluble packets, and “lock and load” systems (a type of closed system).

Common designations for pesticide formulations include:

EC	Emulsifiable Concentrate	WP	Wettable powder	G	Granular
DF	Dry Flowable	WSP	Water Soluble Packet		

Dusts are not soluble in water and are the most likely to drift off target. On the other hand granular formulations are the least likely to move off-target especially if they are drilled into the ground and loaded through a lock and load system.

## **Offsite Movement of Pesticides**

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Pesticides move off-target in three ways: by drift, by volatilization (rapid evaporation at normal temperatures and pressures), and in runoff water. Wind is the most common cause of drift but heat inversion and fog can also contribute. Certain pesticides are volatile and move off-target by

volatilization. Runoff water can also be a culprit in the off-site movement of pesticides, even several months after the application.

## **Incidents – Response Levels 1, 2 and 3**

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### **DEPARTMENT OF FISH AND GAME – Investigation Procedures**

Fish and Game wardens have a Pollution Response Manual which describes their "Incident Command System". Within this system there are three levels of response. Section 4200 of the Pollution Response Manual describes the three levels in this way.

#### Level I

Incident is small and isolated; only a very local impact (tens of feet of stream); no wildlife of "special concern" are impacted; no Proposition 65 hazardous materials involved; no media interest; cleanup requires 1 or 2 days; cumulative DFG response time will be less than 24 hours.

*Response:* The incident can be handled by the individual warden or a lieutenant's squad. Notify and consult the appropriate regional biologist or environmental specialist early in the event so he/she may examine the impact if there is a need to do so.

#### Level II

Incident is moderate to large; location or extent threatens or kills aquatic life; stream impacts widespread (hundreds to thousands of feet); wildlife of "special concern" are, or may be, impacted; Proposition 65 hazardous materials involved; local media interest; significant (days to weeks) containment and cleanup required; cumulative total of Department response time will be greater than 24 hours.

*Response:* The incident requires more time than a lieutenant's squad can afford; on-scene assistance from the captain's squad, biologists, or region administrative staff is required.

The Office of Spill Prevention and Response shall provide limited assistance, largely technical in nature, at the request of the region. Examples of technical support may include health and safety, public information, containment removal strategies, legal and investigative assistance, damage assessment, cost accounting, or other assistance as appropriate.

#### Level III

Incident is very large; substantial fish and wildlife loss; stream impacts extensive (miles of stream); species of "special concern" probably impacted; Proposition 65 hazardous materials involved; incident generates statewide interest and may receive national attention; extensive, long-term (weeks to months) containment and cleanup required; Department involvement will be significant and also long-term.

*Response:* The incident requires a full-scale response by the region, and full, on-scene support from the Office of Spill Prevention and Response and the Inland Pollution Response Office; other local, State,

and federal agencies involved; large, long-term response management structure requiring expert containment, cleanup, wildlife rehabilitation, and environmental restoration.

## **Incidents - Levels of Response**

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DEPARTMENT OF PESTICIDE REGULATION / COUNTY AGRICULTURE  
COMMISSIONERS

DPR/CAC staff recognize four types of pesticide related incidents, although some may include elements of more than one type. These are: human effects; property environmental effects; economic loss; and special incidents.

DPR categorizes investigations of pesticide related incidents as either priority or routine. As referenced under Investigations – Guidelines and Procedures, DPR/CAC staff follow established policies and procedures when responding to various pesticide incidents, whether priority or routine.

Routine investigations could be compared to DFG's Level 1 or 2 incident, while a priority investigation is comparable to DFG's Level 3 incident.

Priority incidents are based upon specific criteria or "triggers" established through a cooperative agreement between US EPA/DPR/CACs. Priority incident investigations have established timelines, and reporting requirements, while the timelines and reporting requirements for routine investigations are not as stringent. The following are specific criteria for determining a priority incident:

## **Definitions for Priority Incidents**

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### **Human Effects:**

- \* Death, including suicide
- \* Serious illness (any pesticide illness requiring hospital admission as is "in-patient status")
- \* Injury or illness involving 5+ people which may result from a single episode

### **Environmental Effects:**

- \* Water - Contamination of drinking water affecting 10 or more households
- \* Air - Contamination of air resulting in evacuation or recommendation to evacuate 5 or more persons by representatives of legally authorized agencies.
- \* Land - Contamination of land or soil resulting in one-half (1/2) acre or more not usable for intended purposes for one year or more.

**Animals (and Wildlife):** Any pesticide incident with associated level of mortality that exceeds the following: (Non-target refers to unintended recipients of a pesticide application)

- \* Birds – 50 Non-target



- \* Fish – 500 Non-target
- \* Endangered or Threatened Species – 1
- Note\* Response to be handled on a case by case as described under Special Incidents)
- \* Domesticated, Game or Other non-target animals – 5

**Economic Loss:**

- \* Damage to any property, equipment, livestock (including bees), that is estimated to represent a \$20,000 loss or 20% crop yield (whichever is appropriate).

**Special Incidents** include:

- 1) Pesticide episodes (or suspected episodes) occurring within Oregon, Nevada, Arizona, Mexico, or tribal lands that have effects in California
- 2) Pesticide episodes (or suspected episodes) occurring within California that have effects in Oregon, Nevada, Arizona, Mexico, or tribal lands
- 3) Any accident involving pesticide application aircraft when it is determined that pesticide exposure or effects caused the accident or the accident resulted in pesticide contamination
- 4) Any pesticide related incident, including those involving endangered species, which through discussion between DPR/CACASA/EPA is determined to be of high priority. These incidents shall be tracked as a priority and all parties will be kept apprised of the status of the investigation.

## **Incident Information**

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California's pesticide regulatory program administered locally by County Biologists, with support from DPR staff provides a number of tools used in the oversight of pesticide use, including various monitoring inspections, audits, pesticide reporting requirements, training documentation, licensing requirements for applicators, and enforcement actions.

Thus, when an incident does occur, particularly in production agriculture, County Biologists can call up information regarding a specific site, history of pesticide usage, past monitoring inspections, past audits, restricted materials permit conditions, if applicable, licensing or certification information, and past enforcement history, if applicable.

Pesticides used in the production of agricultural commodities and other agricultural use situations, pesticides applied by commercial applicators, or pesticides designated as "restricted materials" must be reported to the local County Agricultural Commissioner on designated forms within specific timeframes.

Restricted materials usage carry specific notification, certification, monitoring, and reporting requirements. For example, a Notice of Intent (to apply) is required between four days and one day prior to the application. This notice must include: crop, location, number of acres, pesticide/EPA registration number, applicator, method, rate and dilution of the pesticide.

After the application, the property operator or commercial applicator must report the actual amount of each pesticide used on a Pesticide Use Report. Both restricted and non-restricted pesticide uses are reported. Commercial applicators report within 7 days of application, while growers report monthly.

County agricultural biologists perform several kinds of inspections. These include: pesticide use monitoring inspections such as pre-application site, application, mixing and loading, equipment, and field worker safety inspections, and structural pest control inspections.. Record inspections include: Pest Control Operator, Pest Control Dealer, Pest Control Adviser and grower record inspections, and pesticide storage inspections.

In addition to recorded inspections, and paperwork requirements, various samples, such as grid, gradient, swab, dislodgeables, clothing, water, and soil samples can be collected according to established policy and protocols to aid in an incident investigation

## **Summary**

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This workbook is meant to provide a broad overview of the roles, responsibilities, and typical duties performed by DFG Wardens, County Biologists, and DPR staff in order to gain insight into each other's duties and concerns, particularly with pesticide/wildlife incidents.

While DFG and DPR/CAC staff follow different procedures and standards for incident investigations and response, it is hoped that through this training an increased awareness of the Memorandum of Understanding, the Pesticide/Wildlife Incident Response Plan Agreement with contact and notification procedures, and types of evidentiary information available will aide staffs from each agency in assisting each other should an incident arise.

## **Exercises / Mock Incident**

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The exercises that follow include "get acquainted" exercises, and a mock incident to familiarize staff from each agency about various aspects of incident investigation and response. Participants will be put into teams composed of staff from each agency.

## Exercise 1

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Here is a "get acquainted" exercise. Use the *California Wildlife and Pesticides* booklet to record each of the following pesticides by toxicity to fish and to birds. Ask your CAC counterparts to help with identifying which products below are restricted use pesticides (restricted materials).

Guthion  
Bluestone  
Roundup  
Dursban

Sevin  
Gramoxone  
Bravo  
Magnacide H

Thiodan  
Furadan  
Malathion  
Diazinon

Pesticide Trade Name	Pesticide Active Ingredient	Toxicity to Fish (LC <sub>50</sub> )	Toxicity to Birds (LD <sub>50</sub> )	Restricted Material?

## Exercise 2A)

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We created a “fish kill incident” exercise to help you get acquainted with your colleagues in the other agencies.

Time: 0900

Date: August 15, 2001

Location: San Joaquin Valley, California

Information: Temperatures have been in the 100's during the day and in the 70's at night.

You are the *area warden* for the northern part of Kings County. Much of the area you patrol is occupied by various agricultural activities ranging from nut orchards to range cattle and many different field crops (cotton, tomatoes, melons, alfalfa). Dispatch tells you a citizen reported a large fish kill in an impoundment basin in your district. The citizen stated that "hundreds and hundreds" of fish were dead or dying in the basin. Dispatch tells you the citizen also reported an airplane flying over fields near the basin "spraying stuff". The citizen is waiting for you at a nearby fast food restaurant to show you the location of the dead fish.

When you arrive, the citizen tells you that the same airplane has been spraying fields in the area for the last two days. He reports that it was back again this morning at six o'clock when the citizen had arrived at the impoundment basin to go fishing. He guides you to the area with the dead fish. There are several hundred dead bass, carp and catfish floating in the area. There are some fish still alive in the shallow water but they appear to be stressed and are probably dying. You see the plane pass overhead and the citizen points out three fields where it has worked. Two of the fields are adjacent to the impoundment area on the other side of a large levee. The third is next to a canal that passes by pumps that connect to the impoundment. You do not see any dead fish in this canal.

1) Whom do you call?

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2) What observations do you make? What information do you record?

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3) What do you NOT do?

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**Exercise 2 B)**

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Time: 1030

Date: August 15, 2001

Location: The impoundment in Kings County

You have contacted the Kern County Agricultural Commissioner's Office and spoken to staff about the situation. They are gathering information for you and agree to have an ag. Biologist meet you at the impoundment basin. In the meantime you look around the area. The three fields are two cotton fields and an alfalfa field. Water is running off one of the cotton fields into the adjacent canal. The impoundment is about three-quarters empty with dead fish covering a good portion of the water surface. The water is green. There are numerous fish-eating birds of several species diving on the dead and dying fish without apparent ill effect. The citizen tells you there were "tons of fish" there the previous evening and they were "doing just fine".

The county ag biologist arrives with the following information. The cotton fields have been treated over the past two days with a tank mix of Lorsban and Dibrom 8. She also relays that the alfalfa field was scheduled to be treated that morning with carbofuran. She is as concerned as you about the large number and size of dead fish. The water temperature is about 85E Fahrenheit. The biologist tells you that at this time of year the water is pumped out of the impoundment into the canals to irrigate crops. She tells you there is a 48 hour "no irrigation" restriction on the cotton field tank mix.

Decide together the following, **for each respective agency**:

- 1) What type of samples should be collected? Purpose of the samples?

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- 2) From what areas should you collect the above samples?

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- 3) What information / documentation is needed in relation to the samples?

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- 4) Where are the various samples to be sent?

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### Exercise 3

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Time: 1500

Date: August 1, 1999

Location: Pasture in southern Sacramento Valley

It is the opening day of dove season. The area warden is on patrol, checking licenses and bag limits of hunters. He has been flagged down by a very agitated hunter parked beside a pasture. There are five or six hunters in a group and they are very disturbed. They had arrived at the pasture to hunt dove for the evening flight and they discovered numerous dead birds of various species in the field. One hunter tells you his dog had picked up three dead birds: a pheasant, a dove, and a flicker. He is concerned that his prized hunting dog has been exposed to some poison or terrible disease and is going to die.

The pasture is bounded on the east side by an irrigation canal. A dirt road separates the south end of the pasture from a harvested safflower field. Adjacent to the the pasture on the west side is an alfalfa field and to the north a windbreak of tall trees separates the pasture from a riparian area. There are harvested safflower fields east of the canal. The alfalfa field has been posted with signs stating that it was treated with Dimethoate<sup>7</sup> on July 30, 1999. No other information is available. The warden and the county ag biologist are meeting at the field.

The purpose of this mock exercise is to team up staff from the various agencies in order to gain insight into the investigation procedures, evidence collection and documentation conducted by each agency.

#### **Materials you will receive:**

- 1) A Dimethoate<sup>7</sup> label.
- 2) Foil
- 3) Paper/plastic bags
- 4) Gloves
- 5) DFG Request for Analysis and Chain of Custody form (DFG – FG 1000, rev. 11/94)
- 6) Sample Analysis Report (DPR/CAC – PR-ENF-030, rev 08/01)
- 7) An information sheet of with pesticide use history for the various fields, including growers' names, applicators' names, and harvest dates.
- 8) A mock map of the incident site; indicate & label sample collection points on the map

#### **Sampling Notes:**

For purposes of the exercise, DFG's laboratory will run any "bird" samples, and CDFA's laboratory (via CAC/DPR) will run any "foliage, soil or water" samples; use sample analysis forms appropriate to given agency. Complete at least one DFG analysis form. Complete the appropriate number of CAC/DPR analysis forms for the sampling pattern decided upon.

**Procedural Investigation Questions:**

Decide together the following, **for each respective agency**. Record your answers.

A) What level of incident response does this call for? \_\_\_\_\_

B) Who should be notified? \_\_\_\_\_

C) What information should you get from the hunters? \_\_\_\_\_

D) What type of samples should you collect? Purpose of samples? \_\_\_\_\_

E) How many samples should you collect? According to what procedures/guidelines? \_\_\_\_\_

F) The following questions are for the DFG members of the team:

G) Where should a carcass survey be conducted? \_\_\_\_\_

H) How are bird samples to be collected, prepared, and shipped? \_\_\_\_\_

I) What is the game warden required to wear when collecting samples? \_\_\_\_\_

J) Where should the bird samples be sent? \_\_\_\_\_

K) What should be done with excess carcasses? \_\_\_\_\_

The following questions are for the CAC/DPR members of the team:

L) What is the re-entry interval (REI) for the treated alfalfa field? \_\_\_\_\_

M) What personal protective equipment is needed to enter the treated field? \_\_\_\_\_



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N) How should foliage, soil and/or water samples be collected, prepared and shipped? \_\_\_\_\_

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O) Where should foliage, soil and/or water samples be sent? \_\_\_\_\_

**Follow-up:**

1) After you submit your samples correctly, you will receive laboratory results. Review them carefully.

2) Based upon the DFG & CAC laboratory results what might your next course of action be?

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3) What enforcement action might be taken by DFG? By the CAC? By DPR? \_\_\_\_\_

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Product  
file 160102

# 5 LB. DIMETHOATE

## SYSTEMIC INSECTICIDE

### ACTIVE INGREDIENTS:(By Weight)

Dimethoate O,O-dimethyl S-(N-methyl carbamoylmethyl)

phosphorothioate ..... 57.00%

INERT INGREDIENTS.....43.00%

TOTAL.....100.00%

This product contains 5 lbs. dimethoate per gallon.

**KEEP OUT OF REACH OF CHILDREN**

**DANGER --PELIGRO**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand this label, find someone to explain it to you in detail).

SEE INSIDE PAMPHLET FOR DIRECTIONS FOR USE AND  
ADDITIONAL PRECAUTIONS

EPA REG. NO. 5905- 497

NET CONTENTS:

SN 0195

EPA EST. NO.: first letters of batch code indicate producing establishment:

5905-GA-1 = CG , 5905-AR-1 = WA, 5905-IA-1 = DI, 5905-FL-1 = TF

5905-CA-1 = KC

MANUFACTURED BY  
**HELENA CHEMICAL COMPANY**  
MEMPHIS, TN 38119



No label on this page

## **PRECAUTIONARY STATEMENTS**

### **HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

#### **DANGER - PELIGRO**

Corrosive causes irreversible eye damage. May be fatal if swallowed. Harmful if inhaled or absorbed through skin. Avoid breathing vapor or spray mist. Avoid contact with skin, eyes, or clothing.

#### **STATEMENT OF PRACTICAL TREATMENT**

##### **Organophosphate**

**IF IN EYES** - Hold eyelids open and flush with a steady gentler stream of water for 15 minutes.

**IF SWALLOWED** - Call a physician or Poison Control Center. Drink one or two glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person.

**IF ON SKIN** - Wash with plenty of soap and water. Get medical attention if irritation persists.

**IF INHALED** - Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

**NOTE TO PHYSICIAN:** The product may cause cholinesterase inhibition. Antidote is Atropine.

#### **PERSONAL PROTECTIVE EQUIPMENT**

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category D on an EPA chemical resistance category selection chart.

**Applicators and other handlers (other than mixers and loaders) must wear:**

- Long-sleeved shirt and long pants
- Chemical-resistant gloves, such as barrier laminate or butyl rubber
- Chemical-resistant footwear plus socks
- Protective eyewear
- Chemical-resistant headgear for overhead exposure.

**Mixer and loaders must wear:**

- Long-sleeved shirt and long pants
- Chemical-resistant gloves, such as barrier laminate or butyl rubber
- Chemical resistant footwear plus socks
- Protective eyewear
- Chemical-resistant headgear for overhead exposure.

For exposures in enclosed areas, a respirator with either an organic vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C), or a canister approved for pesticides (MSHA/NIOSH approval number prefix

wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [49 CFR 170.101(d) (4-6)], the handler PPE requirements may be reduced or modified as specified in

#### USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and change into clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

#### ENVIRONMENTAL HAZARDS

This pesticide is highly toxic to bees exposed to direct treatment or residues on blooming weeds. Do not apply this product or allow it to drift to blooming crops or weeds if the treatment area.

This pesticide is toxic to wildlife and aquatic invertebrates. For terrestrial uses, do not apply to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water by cleaning equipment or disposal of wastes.

#### PHYSICAL OR CHEMICAL HAZARDS

Flammable. Keep away from heat and open flame.

#### CHEMIGATION PROHIBITION

Do not apply this product through any type of irrigation system.

#### DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. For any requirement specific to your State or Tribe, consult the agency responsible for pesticide regulation.

### AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 48 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- coveralls
- chemical-resistant gloves, such as barrier laminate or butyl rubber
- chemical resistant footwear plus socks
- protective eyewear
- chemical-resistant headgear for overhead exposure

### NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. Keep unprotected persons out of treated areas until sprays have dried.

### STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

**STORAGE:** Store in a cool, dry area. Do not store below 40°F, as product may crystallize. Avoid storage above 95°F as prolonged storage above 90°F may cause loss in grade.

**PESTICIDE DISPOSAL:** Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**CONTAINER DISPOSAL:** Triple rinse. Then offer for recycling, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

5 LB. DIMETHOATE is a clear liquid. When added to water, it will disperse readily and will

remain physically stable with a minimum amount of agitation.

Do not use, pour, spill or store near heat or flame.

Apply this product only as specified on this label.

Application equipment: 5 Lb. Dimethoate can be applied by any pressure sprayer that will give uniform distribution of the spray such as ground sprayers, aerial sprayers or portable sprayers.

#### Aerial Application:

Automatic Flagging devices should be used whenever feasible.

If human flaggers are employed, they must wear the protective clothing and respirator specified on this label.

This product is intended for use by the commercial grower or commercial applicator in conventional hydraulic sprayers, ground applicators or airplane sprayers. When applying by ground equipment, use the recommended amount in sufficient water for thorough coverage; by aircraft, in 3 to 10 gallons of water unless otherwise specified. Do not apply when weather conditions favor drift of spray from areas treated. Repeat applications as necessary unless otherwise specified. Consult your state experiment station or state extension service for proper timing of applications.

Dimethoate Insecticide is sensitive to Alkaline Hydrolysis and subject to degradation of active ingredient by strong acids, strong bases, and certain heavy metal oxides and salts. Degradation can cause reduced effectiveness of the pesticide performance.

DO NOT ADD DIMETHOATE TO WATER WITH PH VALUES BELOW 4.0 OR ABOVE 7.0.

If necessary, water should be buffered within this range.

#### CONVERSION CHART

1 cup = 8 fl. oz.

1 pint = 16 fl. oz.

1 quart = 32 fl. oz.

1 gallon = 128 fl. oz.

#### CROPS

##### FRUIT:

Apples: Apple maggot\*, Codling moth\*\* - 12.8 fl. oz. per 100 gals. of water. Do not apply within 28 days of harvest. Do not apply when trees or substantial numbers of weeds in the orchard (grove) are in bloom. Apply at petal-fall and every 10 to 14 days thereafter until control is achieved. \*Under heavy infestation some sting injury may occur. \*\*Midwest and eastern states only. Do not graze livestock in treated orchards.



**Tomatoes:** Aphids, leaf miners, leafhoppers - 6.4-12.8 fl. oz. per acre. Do not apply within 7 days of harvest.

#### **FIELD CROPS:**

**Alfalfa:** Aphids, grasshoppers, leafhoppers, lygus bugs, reduction of alfalfa weevil larvae - 6.4-12.8 fl. oz. per acre. This pesticide is highly toxic to bees, do not apply if bees are visiting the areas to be treated when crop or weeds are in bloom. Do not apply within 10 days of harvest or pasturing. Make only one application per cutting. Effective only on cutting to which applied.

**Field Corn:** Banks grass mites (excluding Trans-Pecos area of Texas) - 8.4-12.8 fl. oz. per acre. Aerial Application: Spray over the foliage when mites appear. Apply above rates in 1 or more gals. of water per acre. Grasshoppers - 12.8 fl. oz. per acre. Ground Application: Apply above rate in 20 to 40 gals. of water per acre. Aerial Application: Apply above rate in 1 or more gals. of water per acre. Do not apply within 14 days of harvest. Apply as necessary. Make no more than 3 applications per year. Do not feed or graze within 14 days of last application. Do not apply to corn during the pollen-shed period.

**Cotton (grown in California and Arizona):** Lygus bugs, leafhoppers, black fleahoppers - 6.4-12.8 fl. oz. per acre. Repeat applications should not be made at intervals closer than 14 days. Make only 2 applications per season at the higher rate. Do not feed treated forage or graze livestock on treated fields. Do not apply within 14 days of harvest.

**Cotton:** Aphids, mites, thrips, fleahoppers, Lygus bugs - 3.2-6.4 fl. oz. per acre. Repeat applications should not be made at intervals closer than 14 days. Do not feed treated forage or graze livestock on treated fields. Do not apply within 14 days of harvest.

**Safflower (grown in California and Arizona):** Aphids, leafhoppers, plant bugs including lygus and thrips - 6.5-13 fl. oz. per acre. Repeat applications should be made at intervals closer than 14 days. Make only 2 applications per season at the higher rate.

**Sorghum (milo):** Aphids - 6.4-12.8 fl. oz. per acre. Ground application: Apply above rates in 25 to 40 gals. of water per acre. Aerial application: Apply above rates in 2 or more gals. of water per acre. Banks grass mites (excluding Trans-Pecos area of Texas) - 12.8 fl. oz. per acre. Ground application: Apply above rate in 25 to 40 gals. of water per acre. Aerial application: Apply above rate in 1 or more gals. of water per acre. Grasshoppers - 12.8 fl. oz. per acre. Ground application: Apply above rate in 25 to 40 gals. of water per acre. Aerial application: Apply above rate in 1 or more gals. of water per acre. Sorghum midge - 3.2-6.4 fl. oz. per acre. Aerial application: Apply above rates in 1 or more gals. of water per acre. Do not feed or graze within 28 days of last application. Make no more than 3 applications as needed per season. Do not apply after heading.

**Soybeans:** Mexican bean beetle, spider mites, bean leaf beetle - 12.8 fl. oz. per acre. Aerial application: Apply recommended rate in a minimum of 2 gals. of water per acre. Grasshoppers - 12.8 fl. oz. per acre. Ground application: Apply above rate in 25 to 40 gals. of water per acre. Aerial application: Apply above rate in 1 or more gals. of water per acre. Do not feed or graze



